

**Submission  
No 6**

**CRITICAL TRANSPORT INFRASTRUCTURE SUPPORTING THE WESTERN  
SYDNEY INTERNATIONAL AIRPORT AND WESTERN SYDNEY  
AEROTROPOLIS**

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THE UNIVERSITY OF  
**SYDNEY**

# **Submission to the “Inquiry into critical transport infrastructure supporting the Western Sydney International Airport and Western Sydney Aerotropolis”**

Submission from David M. Levinson



## Introduction

I am pleased to respond to the “Inquiry into critical transport infrastructure supporting the Western Sydney International Airport and Western Sydney Aerotropolis”

I am a Professor of Transport at the University of Sydney, and have worked in the field for 35 years. I lead the TransportLab Research group in the School of Civil Engineering.

This response extends my remarks on the "Inquiry into current and future public transport needs in Western Sydney."

## Sequencing and Timing of Investments

The Western Sydney International Airport (WSA) is a major, but as yet unproven, investment in Western Sydney. It is being supported by the currently under construction Western Sydney Airport (WSA) Metro Line from St. Mary's to Aerotropolis, as well as major highways. No additional funds should be committed until the evidence on the effectiveness of current investments can be assessed and demonstrated. That is, while we might expect the WSA and Aerotropolis will eventually be successful, this may take decades (Dulles Airport outside of Washington DC is an example, opened 1962, didn't gain significant use until the 1980s (Brown 1985).), and additional infrastructure investments in the absence of changes in demand will not magically make that happen, but will drain resources from solving real problems.

Money invested on the hope of development in Aerotropolis cannot be invested in to solve today's problems.

Projects that may be justified well after development begins to materialise in the Aerotropolis area are hard to justify before that. While there is always a chicken-and-egg problem, and some capital may need to be ventured to ensure gains, given the large amount of infrastructure already being built in advance of development, and the uncertainty, the risk of a China-like Ghost City remains. While project promoters hope that outcome does not occur, transport and land use investments should be generally concurrent, transport with no development will be unused, and development without sufficient transport will be slow and inconvenient.

## Where and When to Invest

The discussion below will discuss Public Transport investment at two levels, first When (Immediate Steps, and Further Steps), and then Where (Going clockwise from the North to the South) as a way of organising potential investment choices.

## Immediate Steps: T-Ways to the Future

Given the existing projects (particularly the WSA Metro), the next and most immediate steps to consider involve additional Rapid Buses (high quality, high frequency, on an exclusive right-of-way, i.e. similar to Western Sydney's highly successful T-Way) to Aerotropolis and the Airport from Liverpool and other key

destinations in Western Sydney. These provide advantages in terms of flexibility, the ability of buses to enter and exit the mainline service and provide neighbourhood services, and the ability to quickly reallocate capital (buses) to where and when needed. We will go clockwise from the North.

**North:**

Transport to the North is well covered by the Metro, and while improved local bus services are essential to distribute passengers from stations to the origins and destinations that are not immediately on the line, the level of immediate investment called for here is less than in the other directions.

**Northeast:**

At the top of the agenda should be extending the existing T-Way from Parramatta to Wetherill Park, by going along The Horsley Drive toward Elizabeth Drive to the WSA.

**East:**

One of the most important of these new links would be an East-West link along the Fifteenth Avenue corridor, extending the existing T-Way on Hoxton Park Road.

**Southeast:**

To be considered, particularly if a rail link to the southeast is not to be programmed immediately would be a T-Way from Leppington Station to Aerotropolis via Bringelly Road and the A9. Prior to the construction of a dedicated T-Way, express buses can be run on these routes in mixed traffic, particular in the window after these roads have been expanded, and before congestion manifests.

**South:**

Also to be considered if a rail link is not programmed immediately is, a north-south T-Way from Campbelltown to Aerotropolis via Narellan, Harrington Park, Oran Park, and Bringelly. This is critical in advance of longer-term construction of a Metro.

**Further Steps: Capacity with Trains and Metros.**

Assuming that WSA and Aerotropolis are as successful as hoped, the next steps to consider about public transport rail investments can be organised clockwise:

**North:**

As current plans indicate, the WSA Metro should eventually be extended northward to meet the current Northwest Metro (extended from Tallawong, (probably meeting at Schofields), and the T1/T5 Richmond Line, to take advantage of the connections possible from transfers at a modern redesigned interchange station.

Schofields will eventually be a major development opportunity, given the high level of transport access created by this interchange. Given the minimal amount of development presently abutting the stations, we should assume this is well understood by the planning and development communities, and the land is being banked for future intensive development.

**Northeast:**

Extension of the currently under construction Sydney Metro West from Westmead to the WSA is on the cards, and has been designated on some maps. This would provide direct (single seat) service to Parramatta and the Sydney CBD. The current section is slated to open in 2032, so one expects the earliest it would reach Aerotropolis would be 2040. Suggestions for this line to be extended to the southeast of the Sydney CBD would compete with it for resources.

**East:**

While plans vaguely suggest extending the currently under construction Sydney Metro City and Southwest (M1) line from Bankstown to Liverpool, extending that line from Liverpool westward (to the Airport or Aerotropolis) has not been clearly enunciated. In the long duration of infrastructure, one expects this a “natural” extension, but that said, it is a long and expensive line that may present operational challenges to the Metro given the length of the line, and doesn’t make sense until the Bankstown to Liverpool line is built. So in terms of “Further Steps”, this is probably the “Furthest”.

**South and Southeast:**

There are two inter-related questions:

- Extending the WSA Metro to Campbelltown or Leppington/Glenfield
- Serving Leppington and Glenfield via Metro or Sydney Trains.

There are proposals to extend the WSA Metro south to Campbelltown and/or southeast toward Leppington (and maybe Glenfield). Given the desire by Sydney Metro to minimise branching services and operational variability to maximise reliability, and constraints on funds, one of those directions should be selected first.

The transport outcome of the extension toward Leppington could alternatively be achieved by extending the existing South West Rail Link (SWRL) (Sydney Trains) toward Aerotropolis (and perhaps to the airport itself).

From an accessibility perspective, either is valuable, and if the project can be done cost-effectively, and is accompanied by transit-oriented development, it should have a benefit/cost ratio above 1. However while these technologies have similar impacts, they are not identical.

In the case of a Sydney Trains extension, patrons from Leppington (and East) wanting to use the WSA Metro to access the Airport or points north would need to transfer.

In the case of WSA Metro extension, patrons from Edmondson Park and Leppington could travel westward without transfer, but would now have to transfer (at e.g. Glenfield) instead of having direct service eastward toward Parramatta or the Sydney CBD.

For the foreseeable future, there will be more eastbound than westbound demand, so replacing existing Sydney Trains service with Sydney Metro will inconvenience more existing Sydney Trains users (in the absence of providing both services, which seems excessive given the demands).

Therefore, extending the current Sydney Trains line from Leppington toward Aerotropolis and the WSA seems more cost-effective than building new Sydney Metro service from Aerotropolis to Leppington or Glenfield. This would allow for a direct “Airport-to-Airport” service between Nancy-Bird Walton Western Sydney International and Sydney Kingsford Smith Airport, and direct (single seat ride) service from Aerotropolis to the Sydney CBD if the current T8 were re-routed that way.

Which suggests that if Sydney Metro is to be extended southward, it has more value targeting Campbelltown as a destination, with service through places like Oran Park and Narellan, which do not presently have high frequency rail service, than to Leppington, requiring a transfer, or Glenfield, with the unnecessary added cost and disruption of converting a recently built and functional line. This would be especially valuable if the Faster Rail proposal connecting Newcastle with Canberra via Campbelltown is constructed.

Presumably Sydney Metro will identify detailed station locations for such a line. I would advise to lean toward:

- (1) more rather than fewer stations, and
- (2) designing for flexibility, so that even if a station is not required immediately, the system design allows infill stations at as many locations as possible with the minimal amount of disruption and cost.

Similarly, for a Sydney Trains extension of the SWRL, the design should favour more rather than fewer stations, including two for Rossmore (one at or near the existing stabling facility, one nearer South Creek, as well as one for Bringelly).

## Compatibility

Finally, I will repeat a point from my previous submission: compatibility on Metro technologies (train size, power) should be insisted upon. Metro Lines should use interoperable vehicles. This allows for future flexibility, and the marginal benefits of optimising for a particular line are outweighed by the loss of compatibility and interchangeability of trains that would permit more alternative routing strategies in the future. The reasons for this are made clear in Gooding (2023).

## Disclaimer

These opinions represent my own views and not that of my employer, the University of Sydney, nor any clients I may have worked for.

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